

**REMARKS**

Claims 1-4 are pending. By this amendment, Claims 1-4 are amended. Applicant respectfully submits that no new matter is presented herein.

Entry of this Amendment is respectfully requested.

**Objections to the Claims**

Claims 2 and 4 are objected to because the phrase "said recording gap layer" as recited respectively therein lacks a proper antecedent basis. Applicant has amended the claims responsive to the objection and, therefore, respectfully requests withdrawal of the rejection.

**Claims Rejected—35 U.S.C. § 102**

Claims 1 and 3 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,639,509 to Schemmel ("Schemmel '509"). Applicant respectfully traverses the rejection.

Claim 1 discloses a method for manufacturing a thin-film magnetic head including, among other steps, sequentially depositing a first magnetic layer, a non-magnetic layer and a second magnetic layer and forming a three-layer pole tip structure located between an air bearing surface and a position at a predetermined height from the air bearing surface by ion milling using no reactive gas. The non-magnetic layer is made of a material having an etching rate, for the ion milling using no reactive gas, equal to or higher than that of a material of the first and second magnetic layers.

Schemmel '509 discloses a flux enhanced magnetic data transducer ("magnetic head") and a process for forming the same. The magnetic head includes a top shield layer 60, a first magnetic layer 62 deposited onto the top shield layer 60, a non-

magnetic layer 64 deposited onto the first magnetic layer 62, a second magnetic layer 66 deposited on the non-magnetic layer 64, and an upper pole 72. The top shield layer 60, the second magnetic layer 66, and the upper pole 72 are formed from NiFe; the first magnetic layer 62 is formed from FeN; and the non-magnetic layer 64 is formed from  $\text{Al}_2\text{O}_3$ . The second magnetic layer 66, the non-magnetic layer 64, and the first magnetic layer 62 are ion milled using the upper pole 72 as a mask to produce the magnetic head.

However, contrary to the Office Action's assertion, Schemmel '509 does not disclose each and every feature recited in Claim 1. Schemmel '509 does not disclose a non-magnetic layer being made of a material having an etch rate, for ion milling without using reactive gas, equal to or higher than that of a material of first and second magnetic layers. The non-magnetic layer 64 of Schemmel '509 is formed from  $\text{Al}_2\text{O}_3$  and, therefore, has a lower etch rate than FeN and NiFe, which forms the first and second magnetic layers 62 and 66, respectively. See col. 5, lines 48-54 and col. 5, lines 41-43 of Schemmel '509. Accordingly, the magnetic head of Schemmel '509 does not provide the benefits associated with the present invention. Particularly, the magnetic head of Schemmel '509 is not easily etched, does not provide improved patterning control of the shape of the side surfaces of a three-layer pole structure, and does not prevent the occurrence of an increased recording track width and side fringing. See page 4, line 6 through page 5, line 4 and page 11, lines 14-22 of the written specification.

Further, Figure 3G of Schemmel '509 does not disclose a non-magnetic layer being made of a material having an etch rate, for ion milling without using reactive gas,

equal to or higher than that of a material of the first and second magnetic layers. Figure 3G illustrates a completed magnetic head according to Schemmel '509. Figures 3C and 3D illustrate prior steps in the formation of the completed magnetic head shown in Figure 3G. Col. 5, lines 39-56 of Schemmel '509, which describes Figures 3C and 3D, state that the gap layer 64 is formed from  $\text{Al}_2\text{O}_3$  and the first and second magnetic layers 62 and 66 are formed from FeN and NiFe, respectively. Therefore, because Figure 3G merely indicates the completed magnetic head having the above described layers, Figure 3G does not disclose a non-magnetic layer being made of a material having an etch rate equal to or higher than that of a material of the first and second magnetic layers.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. See M.P.E.P. § 2131. As explained above, Schemmel '509 does not disclose or suggest each and every feature recited in Claim 1. Accordingly, Applicant respectfully submits Claim 1 is not anticipated by, or rendered obvious in view of, Schemmel '509 and should be deemed allowable.

Claim 3 depends from Claim 1 and, therefore, includes every feature recited therein. Therefore, Applicant respectfully submits Claim 3 should be deemed allowable for the same reasons Claim 1 is allowable, as well as for the additional subject matter recited therein.

Accordingly, Applicant respectfully requests withdrawal of the rejection.

**Claims Rejected—35 U.S.C. § 103**

Claims 2 and 4 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Schemmel '509 in view of the Abstract of Japanese Patent Publication No. JP 60074107A to Kobayashi, et al. ("Kobayashi"). Applicant respectfully traverses the rejection.

Claims 2 and 4 depend from Claim 1 and, therefore, include each and every feature recited therein. Claim 1 is described above.

Schemmel '509 is described above.

The translation of the Kobayashi Abstract discloses a magnetic head using tantalum oxide ( $Ta_2O_5$ ) in a gap layer disposed between a pair of magnetic core halves. However, the Kobayashi Abstract and Schemmel '509, either alone or in combination, do not teach or suggest forming a three-layer pole tip structure between an air bearing surface at a predetermined height from the air bearing surface by ion milling using no reactive gas, as recited in Claim 1. Therefore, Schemmel '509, in combination with the Kobayashi Abstract, does not teach or suggest each and every feature recited in Claims 2 and 4.

To establish *prima facie* obviousness, all claim features must be taught or suggested by the prior art. See *In re Royka*, 490 F.2d 981 (CCPA 1974) and M.P.E.P. § 2143.03. Because Kobayashi and Schemmel '509 do not teach or suggest each and every feature recited in Claim 1 and, consequently, Claims 2 and 4, Applicant respectfully submits the Office Action has failed to establish *prima facie* obviousness. Therefore, Applicant respectfully submits that Claims 2 and 4 should be deemed allowable.

Accordingly, Applicant respectfully requests withdrawal of the rejection.

**Conclusion**

In view of the foregoing, reconsideration of the application, withdrawal of the outstanding objection and rejections, allowance of Claims 1-4, and the prompt issuance of a Notice of Allowability are respectfully solicited.

Should the Examiner believe anything further is desirable in order to place this application in better condition for allowance, the Examiner is requested to contact the undersigned at the telephone number listed below.

In the event this paper is not considered to be timely filed, Applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to counsel's Deposit Account No. 01-2300, **referencing docket number 100186-00020**.

Respectfully submitted,

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